



**GRAYLING FOREST MANAGEMENT UNIT
COMPARTMENT REVIEW RESENTATION**

COMPARTMENT # 297 ENTRY YEAR: 2011

GIS Compartment Acreage: 2,079 County: Crawford

Revision Date: August 12, 2009

Stand Examiner: Joan Charlebois

Legal Description: T25N R2W Sections 4, 9, 10, 15, 16, 21
South Branch Township

Management Goals: To maintain forest health, productivity, sustainability, species diversification, and structural diversity throughout the compartment while providing for multiple use and visual management. In addition, to maintain a healthy habitat for the endangered species *Dendroica kirtlandii* (Kirtland's warbler), taking into account warbler management plan directives, species diversity, and visual management.

Soils and Topography: The compartment is dominated by flat outwash plains on Grayling Sand, with Graycalm-Grayling soils on adjacent rolling hills. Organic soils are concentrated along the Thayer Creek floodplain.

Ownership Patterns, Development, and Land Use in and Around the Compartment: The lands adjacent to the compartment are a mix of State, Federal and private ownership, including a golf course development. The compartment is part of the Pere Cheney Kirtland's Warbler Management Unit.

Unique, Natural Features: In addition to Kirtland's warbler habitat, Thayer Creek is part of a designated Natural Rivers system. Kirtland's warbler and dry prairie plants associated with pine barrens have been found within the compartment. In addition, there is the potential for rare insect species to be found within the pine barrens types, and for rare reptiles to occur along the riparian corridors.

Archeological, Historical, and Cultural Features: Old railroad grades cross through the area.

Special Management Designations or Considerations: The compartment is part of the Pere Cheney Kirtland's Warbler Management Unit, a High Conservation Value Area (HCVA). In addition, the Thayer Creek corridor is within another HCVA.

Watershed and Fisheries Considerations: Thayer Creek, part of the AuSable's Natural Rivers designation, runs through the southeast portion of the compartment. A tributary flows into Thayer Creek from the northwest.

Wildlife Habitat Considerations: Habitat management for the Kirtland's warbler not only benefits that species, but also provides habitat for other opening-dependent songbirds, and white-tailed deer. The compartment's aspen and lowland type interface provide habitat for grouse and woodcock.

Mineral Resource and Development Concerns and/or Restrictions: Surface sediments consist of ice-contact and glacial outwash sand and gravel and postglacial alluvium. The glacial drift thickness varies between 200 and 600 feet. Beneath the glacial drift is the Michigan Formation. The Michigan is quarried

for gypsum elsewhere in the State. A gravel pit is located in Section 22 and potential is good on the uplands. None of the Compartment is currently leased for oil and gas development. A few leases are located just to the east of the Compartment.

Vehicle Access: County roads include Haymarsh Creek Trail, Chase Bridge, South Branch, Pere Cheney, Durant Castle and East Seven Mile Roads. The compartment is readily accessible via county roads and state trail roads.

Survey Needs: None

Recreational Facilities and Opportunities: The compartment provides dispersed recreational opportunities in the form of birding and hunting. It does not contain any designated recreational trails or facilities.

Fire Protection: The compartment's blocks of jack pine, in rotation for Kirtland's warbler habitat, are broken up by improved road corridors. Access to the upland areas is good on existing two-tracks. The nearest water source is Thayer Creek.

- **The following 5 reports from the Operations Inventory System (OIPC) are attached:**
 - ◆ **Cover Type by Age Class**
 - ◆ **Cover Type by Management Objective**
 - ◆ **Compartment Volume Summary**
 - ◆ **Proposed Treatments – No Limiting Factors**
 - ◆ **Proposed Treatments – With Limiting Factors**

- **The following information is displayed, where pertinent, on the attached compartment maps:**
 - ◆ **Base feature information, stand numbers, cover types**
 - ◆ **Proposed treatments**
 - ◆ **Proposed road access system**
 - ◆ **Suggested potential old growth**

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Michigan Department of Natural Resources - Operations Inventory System
Individual Compartment Report

AUSABLE STATE FOREST

GRAYLING FOREST MGT UNIT

CRAWFORD COUNTY

COMPARTMENT: 297

Table 3

(acres shown in boxes)

STAND AGE CLASS

COVER TYPE	Not Coded	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150-159	All Aged	Total
Aspen		29		53			151	11											244
Black Spruce								12											12
Jack Pine		824		343		46	26	14	3	24									1280
Lowlnd Brush	37																		37
Marsh	9																		9
Mx Swmp Cnfr					19					13									32
Non Stocked	42																		42
Oak					7					13	106		45						171
Red Pine					13	46	52	23											134
Swamp Hrdwds				3				19											22
Upland Hdwds								50											50
Water	9																		9
White Pine					18	9								10					37
Total	97	853		399	57	101	229	129	3	50	106		45	10					2079

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Michigan Department of Natural Resources - Operations Inventory System
Individual Compartment Report

AUSABLE STATE FOREST

GRAYLING FOREST MGT UNIT

CRAWFORD COUNTY

COMPARTMENT: 297

Table 3A

(acres shown in boxes)

MANAGEMENT OBJECTIVE TYPE

COVER TYPE	A	S	V	C	G	H	J	I	L	P	N	Q	X	O	B	R	K	Y	F	E	T	D	U	M	Z	W	Total
A Aspen	244																										244
S Black Spruce		12																									12
J Jack Pine							1251							29													1280
L Lowlnd Brush									37																		37
N Marsh											9																9
Q Mx Swmp Cnfr												32															32
X Non Stocked													42														42
O Oak														171													171
R Red Pine														4	130												134
E Swamp Hrdwds																			22								22
M Upland Hdwds																								50		50	
Z Water																									9	9	
W White Pine																										37	37
Total	244	12					1251		37		9	32	42	204	130				22					50	9	37	2079

AUSABLE STATE FOREST

GRAYLING FOREST MGT UNIT

CRAWFORD COUNTY

COMPARTMENT: **297**

Table 10 - COMPARTMENT VOLUME SUMMARY - ALL STANDS

COMPARTMENT SUMMARY			
TOTAL VOLUME		CUT VOLUME	
Hardwood	3048 Cds	Hardwood	1998 Cds
Hardwood	1486 Mbf	Hardwood	766 Mbf
Softwood	4071 Cds	Softwood	1159 Cds
Softwood	889 Mbf	Softwood	139 Mbf
Sum TotVol	11869 Cds	Sum CutVol	4967 Cds
Total Cmpt Acres		Acres Proposed For Cut.....	346
2079			

GRAYLING FOREST MGT UNIT

**Proposed Treatments
With NO Limiting Factors**

Compartment: 297 Entry Year: 2011

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FDf Status
2	J5	15	49	45	jack pine	old growth (potential or actual)	final harvest	3	natural regeneration	
<p>comnts Fmd : Variable stand, 3+ ages classes of JP: pockets of JP saps, poles in 40's & 60's; slow-growing, oldest poles/small saw dying out. Poor-quality NPO scattered throughout. Also patchy oak regen 2-5' tall. Averages out to med-stocking, short JP, but there are pockets of 4-5 stick J6. If decide to row-thin adjacent RP stand 3, cut the merch JP in this stand at the same time. Leave all oak. Goal is nat regen (JP & oak), with less than med stocking acceptable. Pere Cheney KW Management Unit. HCVA, therefore stand condition code 8 applied. Averaged current ages with previous YOE's.</p>										
3	R6	48	50	51	red pine	old growth (potential or actual)	thinning	2		
<p>comnts Fmd : RP plantation, most stems moved into the pole class, a minority just into the saw class, sub-merch stems likely to weed out. Self-pruning to 20-25% crown depth. Dom- & co-dom stems 7-9" DBH and 4-5 sticks tall. Growth in last ten years slow, ~ 1mm/yr. Ready for 3rd-row thin, decent row integrity. Take all JP in adjacent rows also at same time (not much alive). Cut adjacent stand 2 at same time. Pere Cheney KW Management Unit. HCVA, therefore stand condition code 8 applied.</p>										
10	O9	45	113	67	oak	mature	shelterwood-seed	2	natural regeneration	
<p>comnts Fmd : Decent-quality site for oak (PArVHa/ParVVb), yet there is upper-crown dieback/thinning occurring in the nice-form dom & co-dom oak. Suppressed oak poles are dropping out. Occasional BTA & RM saw, but mostly RM in pole clumps. Super-canopy WP & RP, W1-W2 underneath. Manage for a mixed oak/pine type. Leave all WP & RP, cut all RM & aspen, and mark-to-leave 30 BA of the healthiest oak. Small wildfire this spring underburned along SE edge. Borders large KW block. Age matched previous, but updated SI (previous 48).</p>										
20	R9	4	55	60	oak	old growth (potential or actual)	shelterwood-seed	1	natural regeneration	
<p>comnts Fmd : RP with large, wolfy RO & WO saw scattered within the stand. RM saps & poles. Old plow furrows, but RP not all associated with them. JP planted?, mostly dead. Primarily RP saw with suppressed poles; variable spacing. Grades into JP type to east and oak/aspens types to west. Mark to leave 30 BA of RP and oak for retention. Regen goal is a mix of oak, pine and aspen (will expand in from west when stand 32 is cut). Pere Cheney KW Management Unit. HCVA, therefore stand condition code 8 applied. Averaged current SI with previous.</p>										
27	A9	68	49	68	aspen (upland)	old growth (potential or actual)	final harvest	1	natural regeneration	
<p>comnts Fmd : TA moving into the saw class, on ground close to the water table. Lowest ground near the Thayer Creek floodplain experiences a seasonally high water table. Pockets of dense balsam fir. A strip of fading SC WP & RP toward the SE, seeding in very little. Rich herbaceous layer, sensitive and cinnamon? fern, Dirca palustris. Woodcock. Individual stem mortality as the suppressed aspen drops out, and top dieback in the dom- and co-dominant aspen stems. Final harvest to regenerate the aspen. Cut the balsam fir 2" DBH & up. Leave the WP & RP, split the 3-10% retention between the drainage side and the roadside. Apply dead & down creation spec. SI is an average between current and previous. Note Natural Rivers set-back for Thayer Creek. SE within Natural River zone, so HCVA.</p>										
30	J6	21	86	43	oak	old growth (potential or actual)	final harvest	3	natural regeneration	
<p>comnts Fmd : Overmature JP stand that has been working its way onto the ground. Terrible health NPO doing the same. Pockets of nice oak saps, some JP saps, but not O2 overall. Stand occupies triangle of higher ground bounded by Pere Cheney, Chase Br. Rds and a powerline. Some vigorous small oak poles. Salvage cut the merch JP, and oak greater than 8" DBH. Old notes indicate that a sale was awarded in 1981 but no cut was accomplished (USFS property at the time). Pere Cheney KW Management Unit. HCVA, therefore stand condition code 8 applied. Used previous SI.</p>										
32	A9	17	53	58	aspen (upland)	mature	final harvest	1	natural regeneration	
<p>comnts Fmd : Nice BTA moving into saw class, scattered oak saw, occasional JP, inclusions of nearly all RM between clones. RM saps filling in below. An area of largely-failed RP planting (excluded from core of RP stand 20) was included in this stand. Final harvest to regen the aspen, cut all RM 2" and up. Given the amount of edge that this long, narrow stand has, do not apply retention. Used previous SI.</p>										
34	J9	8	67	43	oak	old growth (potential or actual)	removal	1		
<p>comnts Fmd : Old planted JP with RP mixed in. As JP has dropped out, some areas have shifted to almost exclusively RP. Nice large sap/small pole oak. Remove the JP and most of the RP overstory in order to release the oak. Mark to leave RP in clumps. Used previous SI. Pere Cheney KW Management Unit. HCVA, therefore stand condition code 8 applied.</p>										

GRAYLING FOREST MGT UNIT

**Proposed Treatments
With NO Limiting Factors**

Compartment: 297 **Entry Year: 2011**

Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	fdf Status
38	Q6	13	87	31	mixed swamp conifer	two aged	removal	3		
comnts Fmd : Tamarack, Black spruce, balsam fir & NWC over F2/S2 on sphagnum mat. NWC short, not saw-quality. Poor-quality tamarack small saw, BS & BF poles & saps. Tam saw older than the BS, one cored 105+. Cut all stems 5" DBH and up, except leave all northern white cedar.										
55	A6	14	56	56	aspen (upland)	old growth (potential or actual)	final harvest	2	natural regeneration	
comnts Fmd : TA bordered on 2 sides by drainages (Thayer Creek to south, trib to north). On low ground, dry at this time. Some bam, but not enough to call P. Rich herbaceous layer. Individual stem mortality occurring on lowest ground. Final harvest to regenerate, concentrating retention along drains. Apply dead and down creation spec. Used stand 62's SI (south part of original stand 55, split off by Thayer Creek's floodplain). HCVA (hence stand condition code 8) - note Natural Rivers set-back.										
57	O9	34	89	65	oak	mature	shelterwood-seed	2	natural regeneration	
comnts Fmd : Mature oak with RM, BTA, WP & RP on rolling/ridged terrain. Oak quality and health decreases as grade down to flats along stand margins. WP understory ranging from W0-W2, some branch flagging (more to S and W). Shelterwood cut to regenerate the oak, keep all pine, cut all RM, aspen & NPO. Goal is a mix of oak, pine and aspen regen. Adjacent pvt shelterwooded. Used previous SI.										
62	A6	32	56	56	aspen (upland)	old growth (potential or actual)	final harvest	1	natural regeneration	
comnts Fmd : TA on shallow gradient down to Thayer Creek floodplain. BF large sap/small pole component increases as get closer to the creek. Hypoxylon present; top die-back occuring. Cut to regenerate the aspen. Apply dead & down creation spec. Focus retention along Thayer Creek (Natural River - HCVA - stand condition code 8), note set-back. Few SCWP -- leave; WP is not seedling in aggressively.										
63	A9	3	56	56	aspen (upland)	mature	final harvest	1	natural regeneration	
comnts Fmd : TA moving into saw class. Occasional RM, oak, WP, BF. Individual stem mortality, some conks. Final harvest along with stand 62. No retention, apply dead & down creation spec. Used stand 62's SI.										
68	O9	13	84	58	oak	mature	shelterwood-seed	2	natural regeneration	
comnts Fmd : Small oak saw (mostly RO), clean boles, some fine-branch dieback but not bad yet. Also RM cull saw, poles, BTA, WP regen. As grade down toward stand 53, oak quality and health decreases. Shelterwood cut, leave any pine, cut all RM and aspen. Goal is a mixture of oak, WP and aspen regen. Rest of type on state land to W (Compt 296) was shelterwooded in 05-08. Used previous SI.										
70	A5	11	59	66	aspen (upland)	mature	final harvest	2	natural regeneration	
comnts Fmd : Long narrow aspen stand on hillside down to swamp. Scattered aspen extends into tag alder on flats. Slope gets shallower toward S end. Some dense hillside clones, but interspersed with RP, WP, JP, BC. Leave 2 or 3, 18"+ DBH RP. Cut the rest to regen the aspen. No retention. Chase aspen into the swamp edge.										
Total Acres.....		346								

**Proposed Treatments
With Limiting Factors**

Compartment: 297 Entry Year: 2011

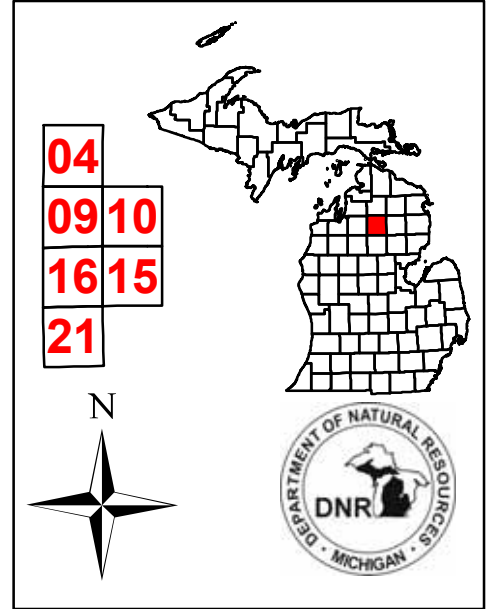
Stand	Cover Type	Acres	Age	Site Index	Mgt Obj	Condition	Method Cut	Harvest Priority	Cultural Need	FD Status
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TREATMENT LIMITING FACTORS:

Total Acres..... 0

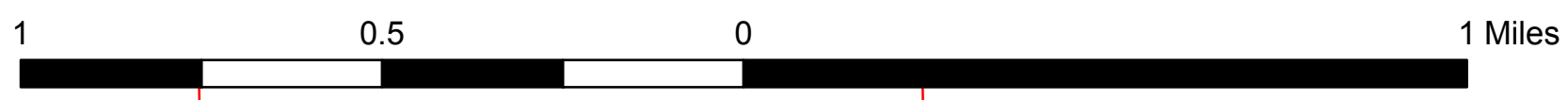
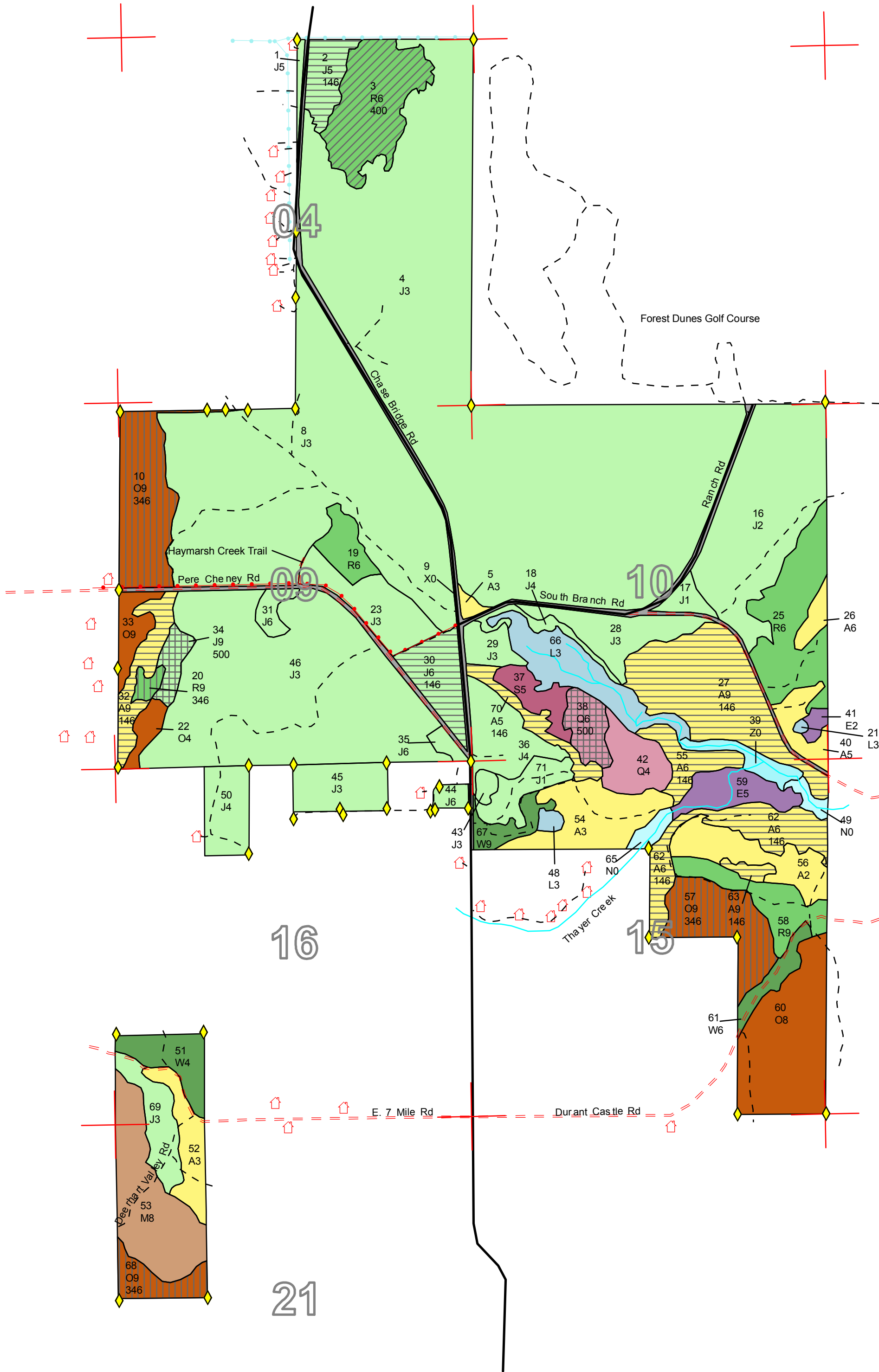
Compartment 297
 T25N, R02W, Sec. 4, 9, 10, 15, 16, 21
 County: Crawford
 Unit: Grayling
 YOE: 2011
 Acres: 2,079 GIS Calculated
 Stand Examiner: Joan Charlebois
 Map Revised: 8/31/09
 Map Phase: Pre-review

Covertypes & Treatment Map



Legend

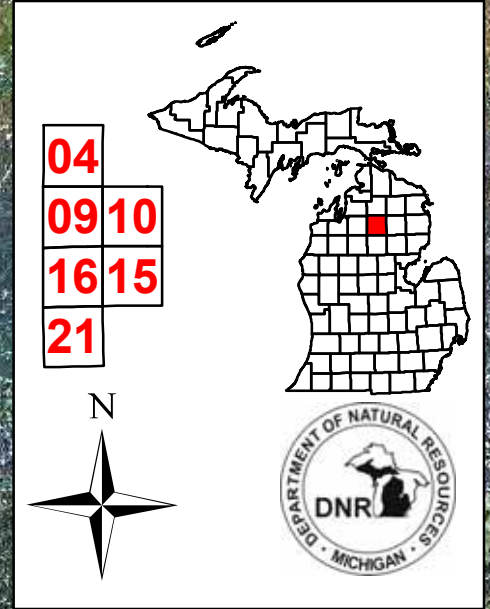
- ◆ RIs Corners
- Miris Corners
- Paved Roads
- - County Gravel Roads
- - Poor Dirt Roads
- Pipelines
- Powerlines
- Water Features
- 🏠 Houses
- Stand Boundary
- ▨ 146 - Final Harvest/Natural Regeneration
- ▩ 346 - Shelterwood - Seed/Natural Regeneration
- ▧ 400 - Thinning
- ▦ 500 - Removal
- A - Aspen
- E - Swamp Hardwoods
- J - Jack Pine
- L - Lowland Brush
- M - Northern Hardwoods
- N - Marsh
- O - Oak
- Q - Mixed Swamp Conifers
- R - Red Pine
- S - Black Spruce Swamp
- W - White Pine
- X - Non-Stocked
- Z - Water



44°37'0"N 84°34'0"W 84°33'0"W 84°32'0"W 84°31'0"W 84°30'0"W
 44°36'0"N 44°35'0"N 44°34'0"N 44°33'0"N
 84°34'0"W 84°33'0"W 84°32'0"W 84°31'0"W 84°30'0"W

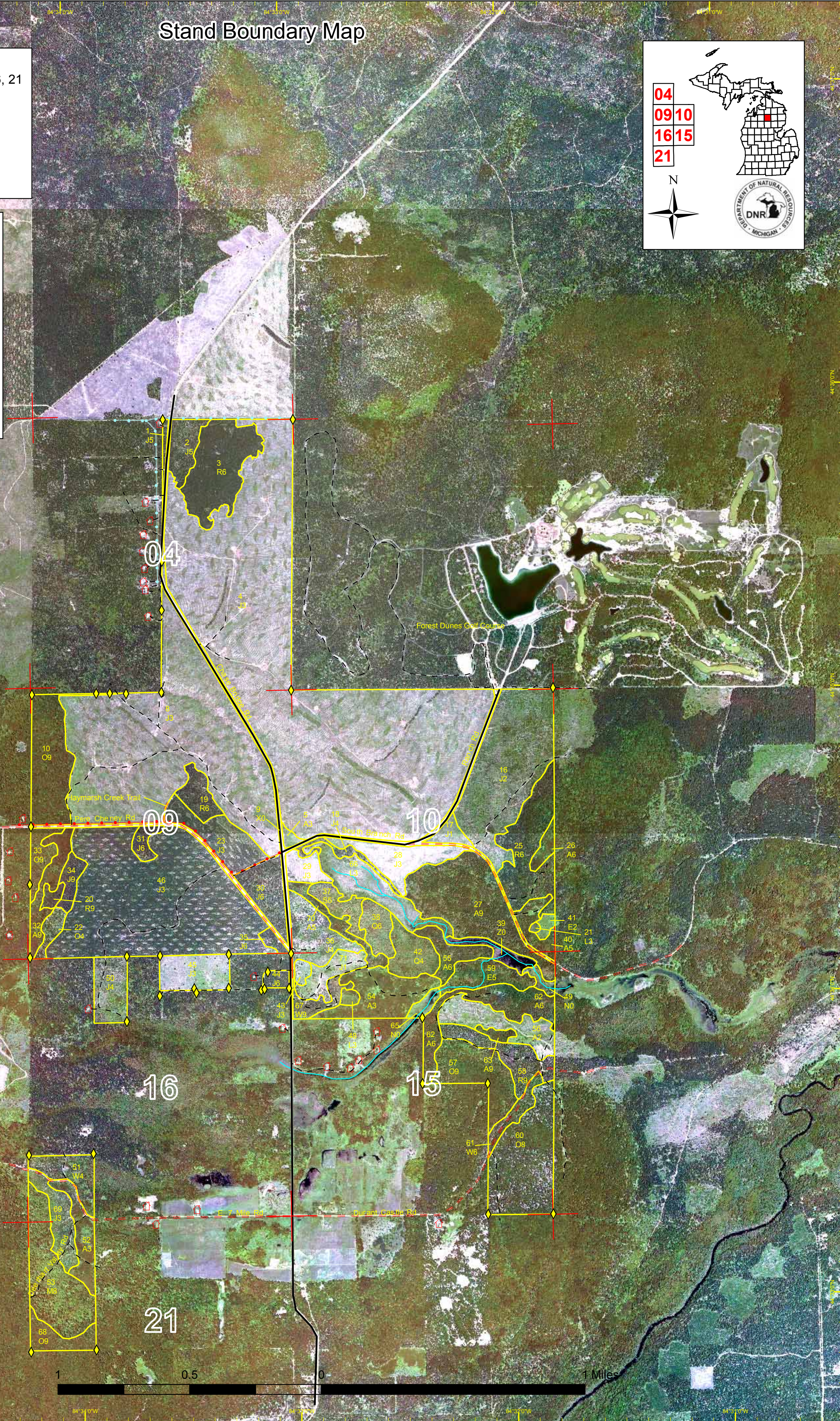
Stand Boundary Map

Compartment 297
T25N, R02W, Sec. 4, 9, 10, 15, 16, 21
County: Crawford
Unit: Grayling
YOE: 2011
Acres: 2,079 GIS Calculated
Stand Examiner: Joan Charlebois
Map Revised: 8/31/09
Map Phase: Pre-review



Legend

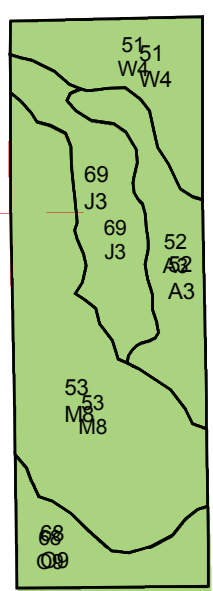
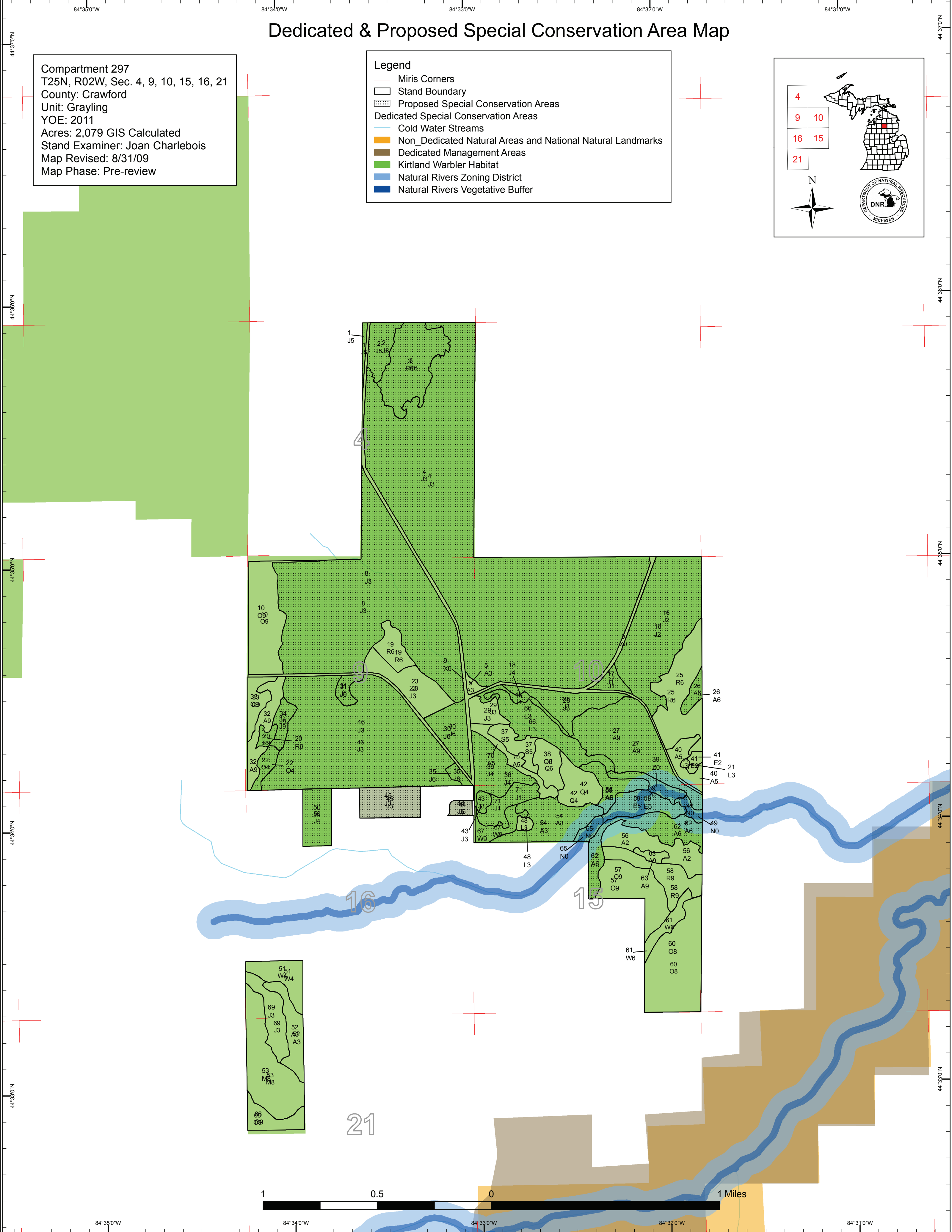
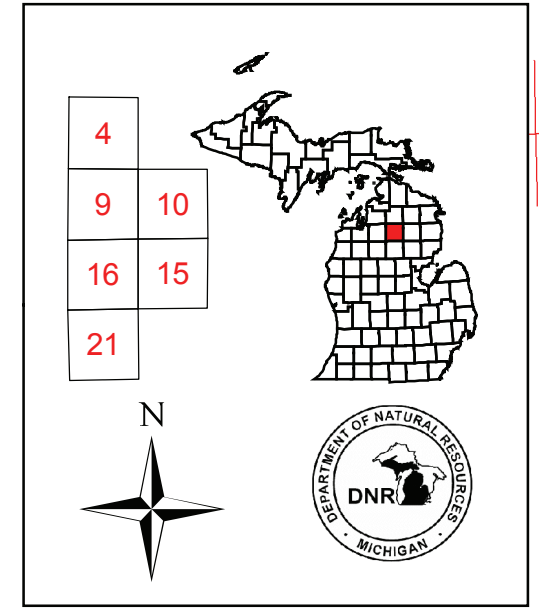
- ◆ Ris Corners
- Miris Corners
- Paved Roads
- - County Gravel Roads
- - Poor Dirt Roads
- Pipelines
- Powerlines
- Water Features
- 🏠 Houses
- ▭ Stand Boundary



Dedicated & Proposed Special Conservation Area Map

Compartment 297
 T25N, R02W, Sec. 4, 9, 10, 15, 16, 21
 County: Crawford
 Unit: Grayling
 YOE: 2011
 Acres: 2,079 GIS Calculated
 Stand Examiner: Joan Charlebois
 Map Revised: 8/31/09
 Map Phase: Pre-review

- Legend**
- Miris Corners
 - Stand Boundary
 - Proposed Special Conservation Areas
 - Dedicated Special Conservation Areas
 - Cold Water Streams
 - Non_Dedicated Natural Areas and National Natural Landmarks
 - Dedicated Management Areas
 - Kirtland Warbler Habitat
 - Natural Rivers Zoning District
 - Natural Rivers Vegetative Buffer





DEDICATED CONSERVATION AREA DETAILS

* This is a list of Dedicated Biodiversity Areas for this compartment along with a 1/4 mile buffer surrounding the compartment. Refer to Dedicated Conservation Area Map for areas that the below listed Conservation Areas are located.

ERA = Ecological Reference Area
HCVA = High Conservation Value Area
SCA = Special Conservation Area

Conservation Area	Type	Description
HCVA	Dedicated Management Areas	Such areas are dedicated by the DNR Director for specific management uses through the promulgation of rules, as governed by Part 5, Department of Natural Resources, of the NREPA (MCL 324.502(2) and 324.504). Section 38 of the Administrative Procedures Act (MCL 24.238) provides for public requests for the promulgation of rules. This is an active program, with one proposed site currently under review by the DNR.
HCVA	Designated Critical Habitat	Critical habitat areas are established via a consultative and cooperative process between the DNR and the U.S. Fish and Wildlife service for the recovery of threatened and endangered species, as governed by Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and the Federal Endangered Species Act of 1973. This is an active program, with proposed species plans in various stages of review. As of now only two exist, Kirtland Warbler Habitat and Piping Plover Habitat.
HCVA	Natural Rivers	There are two Natural Rivers datasets which are derived from spatial buffers set from an established and approved distance from the river centerlines. The Natural Rivers Zoning District is a 400 foot buffer for most Natural Rivers. The Vegetative Buffer ranges from 25 to 100 feet. To view specific Zoning Districts and Vegetative Buffers for each Natural River see the table located on the I:\Documentation\GDSE data folder.
SCA	Archaeological Site	An aquatic or terrestrial area of the State that contains physical remains of human occupation. These are sites of cultural and historical significance that may occur upon terrestrial areas and Great Lakes bottomlands. They include thousands of Native American settlements and burial sites, as well as French and British outposts, nineteenth century logging camps, mines and homesteads. Beneath the waters of the Great Lakes, there are shipwrecks and other remains documenting the maritime trade. Such sites may be identified by Natural heritage data from the State Historic Preservation Office. Proposed treatments in this compartment will be implemented in such a manner as to maintain the integrity of these sites. Due to the sensitive nature of this information, no further detail about location is available.
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Non-Dedicated Natural Areas and National Natural Landmarks	This category is comprised of those Natural, Wilderness and Wild Areas that have been nominated or proposed for legal dedication, but for which legal dedication by legislature has not occurred. The nomination process is defined by Part 351, Wilderness and Natural Areas, of the Natural Resources and Environmental Protection Act, 1994 PA 451. The program is administered by the DNR. Nominations require the submittal of a Natural Areas Nomination Packet to the DNR. This is an active program, with proposed sites in various stages of review. Final dedication of nominated Natural, Wilderness and Wild Areas is accomplished through legislative action.